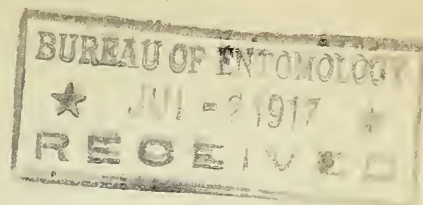


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EMERGENCY ENTOMOLOGICAL SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE.

Reporting cooperation between Federal, State and Station

Entomologists and other Agencies.

Number 3.

Washington, D.C.

July 1, 1917.

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IMPORTANT NEW LEGISLATION IN ILLINOIS.

Dr.S.A.Forbes has written us about a new plant inspection act passed practically unanimously by the legislature which adjourned recently. Section 21 of this Act is as follows:

"If the Department of Agriculture shall find, at any time, in any country, township, or other geographical district, fields, crops, or any property or place so infested by insect pests, or infected with plant diseases as to threaten increasing or serious injury to farmcrops or other property, which injury might, in the judgment of the Department of Agriculture, be restrained by reasonable measures of arrest and prevention, it shall require all persons owningm leasing, managing, or occupying property infested by such insect pests, or infected by such diseases, within said district, that they shall take such measures of arrest and prevention as are prescribed by the Department of Agriculture for the protection of the property of others against injury; and it shall be the duty of every person so notified and instructed to perform the acts required of him by the instructions of the Department of Agriculture."

In Section 23 it is further provided that "Any person * * * who shall fail or neglect to take such reasonable measures for the arrest and prevention of injury by insect pests and diseases as are required of



THE [illegible] OF [illegible]

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CHAPTER I

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him by the Department of Agriculture under Section 21 of this Act * * shall be adjudged guilty of a misdemeanor, and upon conviction shall be punished by a fine of not less than ten dollars or more than a hundred dollars for each and every offense, together with all the costs of the procedure."

STATUS OF EMERGENCY APPROPRIATION FOR
DEPARTMENT OF AGRICULTURE.

The bill to provide for the national security and defense by stimulating agriculture at the present time (June 27) is still in the hands of joint conference committee of the House and Senate.

EMERGENCY ENTOMOLOGICAL SERVICE IN NEW YORK.

Under the New York Food Supply Commission Dr.E.P.Felt has organized an Insect Pest Survey and Information Service. On June 14 and 21 weekly digests were issued and a special circular on the seed corn maggot on June 18. This admirable service is certain to be of great value to the state.

SUGGESTIONS
FROM STATE AND STATION ENTOMOLOGISTS.

Mr. F.M.Wallace, State Entomologist of Indiana, has prepared a series of illustrated leaflets concerning the more important injurious insects of the State. The drawings were made by E.R.Snodgrass. The leaflet dealing with the potato beetle, for example, has an illustration of a portion of a potato plant showing the beetle in various stages. An inset shows adults as they are found in the soil during winter. A can labeled "arsenate of lead" completes the illustrations and points the remedy, but a brief printed statement about control measures adds definiteness and force to the presentation.

Mr. V.I.Safro calls attention to the difficulty of obtaining adequately trained men for emergency entomological work and suggests the advisability of giving them special training. On the practical side of the work he calls attention to the fact that many of the standard recommendations apply to conditions in gardens or in small cultures and do not necessarily apply to the conditions in various regions where very extensive cultures of onions and similar crops are undertaken. He states

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY
CHICAGO, ILLINOIS
JANUARY 1, 1914

REPORT OF THE
COMMISSIONERS OF THE
LAND OFFICE

FOR THE YEAR
ENDING DECEMBER 31, 1913
AND THE PROGRESS OF THE
LAND OFFICE DURING THE YEAR

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CHAPTER I. GENERAL STATEMENT OF THE
LAND OFFICE AND ITS WORK

The Land Office of the State of Illinois is a department of the State Government, created by the Illinois Constitution of 1870. It is the responsibility of the Land Office to manage the State's land resources, including the acquisition, disposition, and maintenance of land. The Land Office is headed by the Commissioner of the Land Office, who is appointed by the Governor of the State. The Land Office is divided into several divisions, each responsible for a specific area of land management. The divisions include the Division of Land Acquisition, the Division of Land Disposition, the Division of Land Maintenance, the Division of Land Surveying, and the Division of Land Records. The Land Office also has a number of advisory committees, including the Advisory Committee on Land Acquisition, the Advisory Committee on Land Disposition, the Advisory Committee on Land Maintenance, the Advisory Committee on Land Surveying, and the Advisory Committee on Land Records. The Land Office is an important part of the State Government, and its work is essential to the management of the State's land resources.

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that special attention to large scale control measures is advisable. He adds:

"The extension work that these men would be called upon to do would, of course, be strictly for the assistance of men growing the crop. Such growers want to know not only how to combat certain insect pests, but how certain operations can be economically combined with other operations. To meet this important situation, extension entomologists should of course be thoroughly acquainted with the control of plant diseases as well as insect pests and the mechanical equipment necessary for effective work. Too often our economic entomologists ignore the fact that their recommendations cannot possibly be conducive to the best results unless they know and explain how growers can combine fungicides with insecticides, thereby reducing one of the main items of expense, the labor. Many growers will not spray at all for certain insects unless they know that the insect spray can be combined with Bordeaux or some other fungicide."

Mr. Franklin Sherman reports that in North Carolina the entomological activity in relation to the emergency work has been organized. All county agents have been requested to report any insect outbreaks, and they are responding creditably. Form letters calling attention to practical methods of insect control, such as the spraying of orchards, have been prepared and copies are enclosed in all letters to citizens of the state. An extension circular on the spraying of potatoes has been issued and three thousand copies were mailed within three weeks. A letter was sent to about three hundred beekeepers urging the highest possible production of honey. The honey crop in eastern North Carolina is far above the normal, and some of the beekeepers were not adequately prepared for the crop. A printed letter urging increased production of foodstuffs, safe storage, and the prevention of loss and waste was prepared by Mr. Sherman for transmission with all letters emanating from the various offices of the State Department of Agriculture.

On June 25, Prof. H.A.Gossard wrote as follows:

"I am trying to arrange for a scouting survey of the state along at least three, and possibly five to six lines from the southern to the northern part of the state, following the wheat harvest and beginning in the southern part about a week from now. Observations will be specially directed to pests of wheat and cereal crops, but incidental information regarding all insect pests and the more common fungous diseases of the cereal crops will be subjects of inquiry by the surveyors. I am likewise sending out a questionnaire and report blanks to all county agents, district food supervisors, superintendents of county farms, etc., in the state as indicated by the enclosed circulars."

REPORTS ON INSECT CONDITIONS.

Cereal and Forage Crops.

The outbreak of grasshoppers in western Montana, reported by Professor R.A.Cooley in the June number of this publication, assumed an acute stage during the first week of June. Several telegrams signed by farmers and county agents, were received by the Department, calling for aid. In response to these communications Messrs. C.W.Creel and E.J.Taylor were dispatched from the Forest Grove, Oregon, field station to assist the state authorities in controlling the outbreak. A large portion of the infestation occurred on Indian lieu lands situated on the Flathead Reservation, and for this reason the Bureau of Indian Affairs appropriated \$1,000 for the purpose of purchasing material with which to poison the grasshoppers. Mr.Creel reports that farmers and citizens of Polson and vicinity also raised the sum of \$2,500 by public subscription for the same purpose. As a result of the close cooperation among the county, state and Federal organizations it is believed at the present writing that the situation is well in hand.

In the Sacramento Valley of California, T.D.Urbahns reports that as a result of the present food emergency large areas of more or less isolated new land have been placed in cultivation by enthusiastic people. Many of these plots have been planted to Egyptian corn, mainly because it may be grown without irrigation. Such tracts, in many cases, are surrounded by grazing lands from which the grasshoppers migrated in all directions to the succulent corn and threatened to destroy the crops entirely. In such cases Mr. Urbahns recommended that fire breaks be plowed completely around the farms some half-mile distant from the cultivated areas, that the space between the fire breaks and the cultivated fields be burned over, and poisoned bait distributed afterward within the cultivated fields. In this way the grasshoppers in the fields were destroyed, and the strip of burned-over ground served to prevent the grasshoppers from migrating from the grass lands to the cultivated fields. It was found that this method was effective.

The Hessian fly situation in Eastern Kansas at present is considered by the Kansas Committee on Insects as constituting a real menace to the 1918 wheat crop in that portion of the state. The infestation is especially severe in the counties of Barton, Ellsworth, Saline, Dickinson, Rice, Stafford, Reno, and McPherson in Central Kansas. This statement applies also to Montgomery, Neosho, Crawford, Labette, and Cherokee counties in the extreme southeastern corner of the state. The situation elsewhere has not changed greatly.

In Illinois, according to reports from Doctor Forbes, the infestation is much less severe than usual wherever wheat is grown.

In Nebraska Mr. Swenk reports that no serious Hessian fly infestation has been observed.

Owing to heavy and general precipitation throughout most of the territory threatened by chinch bug, the probability of a serious outbreak has been greatly lessened within the past few weeks. Doctor Forbes now believes that in Illinois no serious infestation may be looked for in the near future while in Kansas, according to Prof. George A. Dean, Mr. E. O. G. Kelly, and Prof. S. J. Hunter, no general infestation is expected although local injury probably will occur. In Oklahoma, according to Mr. Kelly, the situation is not so favorable and serious injury to corn may result.

A poster covering the chinch bug situation is in press and an edition of 30,000 copies will be printed for distribution throughout the principal regions usually infested by the chinch bug.

Wireworms, both false and true, have caused more injury than usual to small grains this year in Montana, Idaho, and Eastern Nebraska. In the latter state some species of Melanotus apparently is responsible for most of the injury observed, according to a statement received from Mr. Myron Swenk. The geographical center of these injuries was in York county, but severe injury also occurred in Howard, Merrick, Polk, Butler, Saunders, and other counties of the state. The percentage of injury was estimated at from 5 per cent to as high as 60 per cent in some fields. An unusual phase of this outbreak of Melanotus larvae was the fact that the most severe injury occurred in the higher ground, while as a general rule these wireworms are known to be moisture-loving forms and therefore found in low-lying poorly drained lands.

George I. Reeves, in charge of Alfalfa weevil investigations, reports that the area infested by the alfalfa weevil is producing the only good first crop of alfalfa seen there in five years. This means a great increase in the food supply throughout the infested region.

A remarkable outbreak of the corn ear or cotton boll worm occurred in early June throughout the States of South Carolina, Georgia, and Alabama. The insect confined its early attacks almost exclusively to hairy vetch, afterwards migrating to cotton and corn. The larvae differed so remarkably in color as to confuse entomologists for some time as to the real identity of the depredator. At the present writing the outbreak is in a more or less quiescent condition but may cause serious trouble later in the season.

A survey conducted by D. J. Caffrey throughout the region in New Mexico formerly infested with the range caterpillar reveals the fact that at present the caterpillars are less numerous than for several years past. In fact, this pest is so scarce as to indicate a possible complete subsidence of the outbreak. Specimens of the introduced predators Calosoma scrutator and C. sycophants were recovered in small numbers.

In addition to these reports, the following are also included in the report.

The first of these reports is a report on the work of the various committees of the Council, and the second is a report on the work of the various committees of the Council.

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Although meteorological conditions this year have been favorable for the multiplication of aphids in general, comparatively few complaints of severe injury to cereal crops by these insects have been received as yet. Mr. V. L. Wildermuth, writing from Tempe, Arizona, reports that the greatest damage caused by any one insect in Southern Arizona during the present season is due to the work of Aphis maidis. The average loss to barley in that region is fully 25 per cent.

The extremely severe outbreak of Aphis bakeri, which occurred in the clover seed growing region of Southern Idaho during the summer of 1916 apparently has entirely subsided. Statements received from entomologists A. C. Burrill and extension leader O. D. Center indicate that scarcely a specimen of this or any other aphid affecting clover can be found at present in the region which was so severely injured last year.

The work of the species of joint worms affecting wheat has been more apparent during the past spring than for some time. Mr. Geo. G. Ainslie reports quite severe injuries to wheat by these insects in the vicinity of Greenville, Tennessee, and general injury throughout the state by these pests is indicated by a statement received from entomologist Bentley. In southern Indiana and Illinois, according to Mr. J. J. Davis, the injury by joint worms is much more severe than usual, especially in Indiana.

W. R. Walton.

Southern Field Crop Insect Investigations.

Early in June Professor Paddock of the Texas A. and M. College reported an extensive outbreak of rice insects in Matagorda County, Texas. On investigation it was found that two species of Coleoptera, hitherto unknown as enemies of rice, were involved. The damage caused to the present crop was estimated conservatively at two hundred and fifty thousand dollars. It ranged from 10 per cent to 90 per cent on the forty-five thousand acres planted to rice in the county. Apparently the insects have been spreading for several years, and show every indication of becoming widespread and important enemies of rice.

On June 23, G. D. Smith reported from Madison, Florida, that he had found Laphygma frugiperda doing rather serious injury to corn. This was done by an early brood of the insect and there seems to be a possibility that later broods will do more injury and may cause losses in more northern localities.

J. U. Gilmore reported on June 23 that the tobacco thrips was present in large numbers in the vicinity of Oxford, N. C..

Reports of injury by the cotton aphid were general during the early part of the month, but the weather conditions recently have been such as to reduce the numbers of the pest.

The boll weevil has not yet attracted any special attention although it has been found in considerable numbers in the sea island cotton district in northern Florida.

No special insect injury is reported from the Imperial Valley in California.

W.D.Hunter.

Truck Crop Insect Investigations.

During the month there were more complaints of the Colorado potato beetle than of any other insect. Root maggots were the subject of much complaint, followed closely by the common bean weevil and other weevils. Cutworms were next in order. The striped cucumber beetle was next in line, followed by the common cabbage worm. The harlequin cabbage bug is beginning to appear in great numbers.

The bean aphid made its appearance in the District of Columbia on common curly dock during the first three weeks of May. The carpenter ant was found repeatedly attacking this aphid. In the West this species continues to be of the greatest importance. Nicotine sulphate, 40 per cent, is being used and an endeavor is being made to secure the services of ladybirds as auxiliaries. The species is the same one that had been introduced into Tidewater Virginia, the convergent ladybird.

Much injury by root maggots is being accomplished in the State of Washington.

Injury to potatoes by aphids, undetermined in most cases, has been observed in Northern Illinois, all of Ohio, in Missouri and in some other regions. The species appears to be the spinach aphid (Myzus persicae Sulz)

We have received reports of damages by a small tenebrionid, Blapstinus rufipes in the vicinity of Sacramento, California. Three weeks after injury was reported the insects had nearly disappeared.

The three lined potato beetle was observed the first week of June in the District of Columbia, and by June 19 we obtained full grown larvae at Mt. Ranier, Md., which entered the earth to pupate that night. As this species occurs on potato it may become a pest this year.

Several complaints have been made of blister beetles. The three lined blister beetle made its appearance at Rosenberg, Texas, May 24, according to correspondence from C.L.Young of that locality.

The melon aphid is very abundant in the Gulf region from

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1. General Survey

2. Detailed Account of Work Done

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Florida to Texas, and measures have been taken to control it. The pea aphid is injurious to peas in Louisiana. The common stalk borer is the subject of complaint, it is particularly injurious to tomatoes.

H.O. Marsh, under date of June 18, 1917, reported from Rocky Ford, Colorado, that the false chinch bug was in evidence in small numbers on the blossoms of spinach, but at that time the seed beets had not become infested. Plots of spinach planted there in October, 1916, in March, and at intervals through April 1917 are giving an extremely interesting opportunity to make experiments and comparisons. At the time of writing it would seem that the plants from seed planted in October and March are forming seed and might escape damage by the false chinch bug.

F.H. Chittenden.

Deciduous Fruit Insect Investigations.

Conditions as regards deciduous fruit insects continue on the whole to be very favorable. There is evidenced a distinct interest in the control of insects attacking orchards, vineyards, etc., which has led to an unusual number of inquiries. There is no evidence however to indicate any unusual and important loss to fruit crops by insects throughout the country so far as known to the writer.

In Connecticut, as stated by Doctor Britton, the rosy aphid is present, infesting principally the terminal shoots of the apple in preference to fruit clusters which are more usually attacked. Considerable injury is also noted by the lined red bug, Lygidea mendax, and the white-marked tussock moth is abundant everywhere. Canker worms are only moderately numerous, and the tent caterpillar, Malacosoma americana, so abundant in the New England States the past few years, is practically absent, at least in the southern part of the state.

From the pecan insect laboratory in Florida, Mr. John B. Gill reports an improved situation in regard to complaints of injury to pecan trees by certain pinhole borers, Xyleborus saxeseni, Xyleborus pecanis, and Xyleborus affinis, which had attacked trees injured by cold during the preceding winter. A large amount of inquiry concerning these insects resulted, but growers are now generally acquainted with the true cause of the decline of trees. Professor Harned will shortly issue through the Office of Information of the Mississippi Agricultural College, an article on "Ambrosia Beetles and Pecan Trees", which will further clarify the situation. The walnut caterpillar, Datana integerrima, is reported to be prevalent in southern Alabama and Mississippi, stripping pecan trees of foliage and more important injury is anticipated by the second brood in late summer and early autumn. Mr. Gill also reports a curious situation as regards the pecan leaf case bearer, Acrobasis nebulella, in pecan orchards in the Gulf coast region of Mississippi. July 5 and 6 of last year that territory was swept with a terrific storm,

at which time eggs of the case bearer were on the foliage. The storm so thoroughly stripped the trees of leaves that the eggs and larvae were destroyed, with the result that this first class pecan pest is less troublesome in that territory than for many years.

From Louisiana Mr. T. H. Jones, of the Bureau of Entomology, reports a severe outbreak of the fall webworm, Hyphantria cunea, especially in Lafourche Parish. In addition to many other plants the larvae are feeding on pecan. Injury by the second brood of larvae will doubtless be important.

Doctor Fernald writes for Massachusetts that his correspondence thus far suggests no unusual abundance of orchard insects, though the usual pests, as plant lice and the codling moth are present, and the red bug has made its first appearance at Amherst. The pear Psylla is reported to be practically absent.

In Michigan, Mr. F. L. Simanton of the Bureau of Entomology, reports a severe outbreak of the rosy aphid on apple in the region extending from the southern end of the State as far north as Ludington and eastward to Kalamazoo. The apple leafhopper is noted as fairly abundant on pear trees.

From New York State, Doctor Felt reports no unusual outbreak of fruit insects, though the common pests as aphids, bud moth, red bugs, etc., are present. The tent caterpillar is unusually scarce. Good results have followed spraying for the pear Psylla and more spraying has been done than usual for the codling moth.

Professor Parrott, of the Geneva, N. Y. station, reports that the special efforts made to induce increased spraying for red bugs have been successful, and more orchardists than ever before have attempted to combat these pests. The insect however is not regarded to be as abundant as last year, though most orchards show evidence of some injury. The tent caterpillar is reported to be scarce, and the rosy aphid will not be destructive.

In Ohio Professor Gossard writes that there have been no general or disastrous outbreaks of injurious insects in the State, but that canker are rather serious in Wayne, Stark and Richland Counties. Certain forest trees have been more or less stripped of foliage and orchards adjacent to woods have naturally suffered. Numerous reports have been received relative to apple aphids, black cherry aphid and aphids on currants, though injury apparently has not been serious. In eastern Ohio the tussock moth, (Haemerocampa leucostigma) is reported in large numbers and also at Fostoria. In Wayne County the plum curculio has apparently been abundant and injurious, and reports of its damage have been received especially from Youngstown. Professor Gossard is of the opinion that this insect has been very numerous and injurious the present spring over north-eastern Ohio.

In Rhode Island, according to Professor Stene, canker worms are unusually abundant in some sections of the State.

From the Bureau of Entomology Laboratory at French Creek, W.Va., Mr. C.R. Cutright reports the rose bug, Macrodactylus subspinosus, as there present in large numbers and that a number of complaints concerning its injuries to grape has been received.

Mr. E.B. Blakeslee, of the Bureau of Entomology, writing from Springfield, W.Va., the center of the peach-growing industry, reports unusual absence of the plum curculio in that immediate section, which is in decided contrast to conditions there prevailing last year.

A.L. Quaintance.

Tropical and Subtropical Fruit Insect Investigations.

Mr. Yothers reports from Florida that during the last month rust mites have become very abundant and have shown no diminution as a result of the freeze of five months ago. Notices have been sent out therefore, that spraying should be undertaken at once. He says further that most sections of the state are still remarkably free from white fly and scale insects. Ordinarily these insect pests are fairly well controlled during the rainy season by the several species of parasitic fungi. This control may, however, be ineffective this summer by reason of the fact that so many trees lost their leaves in February and the fungus carried away with these leaves may be slow in regaining its foothold.

Mr. Woglum reports from southern California that the prolonged spell of abnormally high temperatures throughout the citrus area from June 13 to 18 appears to have been very destructive to scale insects.

C.L. Marlatt.

Forest Insect Investigations.

W.D. Edmonston, Colorado Springs, Colorado, writes as follows:

"A very decided decrease in natural insect enemies of *Dendroctonus*, infesting coniferous trees in the Pikes Peak region, Colorado, is especially noticeable this season. The larvae of *Dendroctonus* are almost undisturbed in their destructive work. With the exception of Dipterous larvae and these are exceedingly scarce, there are none of the usual predatory larvae to be found, or at least they are very scarce.

During critical times like the present any reduction in our forest stock through insect enemies is not only poor business but the obviously greater fire hazard resulting from the accumulation of inflam-

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mable dying and dead trees is unfortunate.

A man who knows how to keep an axe sharp and can cut down a tree, and not beaver it down, can easily fell with that axe s 20 inch diameter infested pine tree in as many minutes; the bark can be removed from the main trunk in 30 minutes. This is all the work necessary to destroy a brood of Dendroctonus.

It is not at all unlikely that this season will show an increase in tree killing power by Dendroctonus of at least 30 per cent. It only requires some 200 adult Dendroctonus attacking a healthy living pine tree 10 inches in diameter to kill it."

J.H.Pollock, Colorado Springs, Colorado, makes the following report:

"All through the Pikes Peak region, Colorado, I find that the coniferous trees are much more heavily infested with plant lice of the genus Chermes than has been the case for some years past. On the spruce one can find everywhere a large number of young galls and on pine and fir the cottony material produced by these insects is very conspicuous. The most important enemies of these pests, Syrphus and Coccinellid larvae, seem to be very scarce this season."

A.D.Hopkins.

Bee Culture.

There is little to report in the line of new plans for the work in June. The early campaign for stimulating beekeepers to increase the honey crop was closed early in the month. At present envelopes are being addressed for a second set of circulars to go out in July.

The response from beekeepers has been notable. During May the incoming mail exceeded the amount received in any previous ten months, while in June, up to the 23rd, it increased over 50 per cent above May. The number and character of the letters received show clearly that beekeepers are preparing to do their best this year. The unusual lateness of the season has in some localities allowed more time for beekeepers to prepare for a special effort but the freight congestion is in some cases preventing them from getting supplies that are absolutely necessary.

The Office of Markets and Rural Organization instituted its honey market news service on June 15th. The market bulletins will be issued semi-monthly and should serve to curtail the speculation in honey which is believed to exist. It will furnish honey producers and buyers with reliable market information, which has been lacking in the past. This service was planned before the war emergency arose but it will be of exceptional value at this time.

E.F.Phillips.

Medical and Veterinary Entomology.

D.L. Van Dine states that the season in northeastern Louisiana has been very dry. This has an important bearing on malaria. Mr. Van Dine states "One benefit derived from this period of dryness is the reduction in the density of the Anopheles mosquitoes, the lack of rain and high temperatures operating on both the larvae in the breeding places of these mosquitoes and the activity of the adults. The reduction in the active cases of malaria is already apparent. The unusual amount of rain in the spring and the seep water in the bayous and sloughs along the river gave rise to an unusually high density of malaria mosquitoes early in the season with a consequent early appearance of active cases of malaria. The dry hot season has checked what promised to be an unusually active season of the disease. The tertian malaria parasite has about disappeared with the appearance of warm weather with an increase in the per cent of the estivo-autumnal parasites. Anopheles quadrimaculatus is the prevalent malaria mosquito encountered this season. Under the acute labor conditions which obtain, the unfavorable weather conditions affecting the crops is offset in part by the increased efficiency of the labor due to the check to the disease malaria".

Mr. F.C. Bishopp wrote from Dallas, Texas, June 21, as follows:

"I should like to bring to your attention the unprecedented number of fleas which are reported from various localities in this vicinity. In a number of instances the outbreaks have been quite severe, both man and various domestic animals suffering. An investigation of some of the occurrences shows that four different species are causing annoyance: The human flea (Pulex irritans), the dog flea (Ctenocephalus canis), the cat flea (Ctenocephalus felis), and the sticktight flea (Echidnophaga gallinacea). The abundance of fleas here is I believe correlated with the rather uniform distribution of rainfall during the spring months and probably a high humidity. Serious injury was reported only from one species, the sticktight flea, which was said to have been responsible for the death of a large number of young chickens."

Prof. R.W. Harned made the following statement on June 5.

"This year we have received a large number of complaints in regard to the sheep botfly, Oestrus ovis. I suppose this insect is always with us, but for some reason the complaints have been more numerous this year than ever before. This may be due to the increased interest in sheep raising. Some owners complain that this insect causes the death of many of their sheep. Of course there is always a probability that these cases are complications and other parasites are also at work."

GENERAL REPORTS ON CONDITIONS IN STATES.

ARKANSAS.

On May 30 Mr. Geo. G. Becker wrote as follows:

"I had the first complaint of the year regarding the sugar cane beetle only last week, and learn that it is doing damage this year in the vicinity of Little Rock."

"The corn and cotton wireworm, Horistonotus uhleri, is another pest which has caused wide spread injury in north central and north-eastern Arkansas. Local outbreaks of cutworms, and now and then leaf hoppers also give us concern."

ARIZONA.

On May 29, Dr. A. W. Morrill wrote as follows:

"The principal recent development in connection with insect outbreaks in this state is the very unusual abundance of the two-spotted red spider (Tetranychus bimaculatus). This has been injurious to alfalfa on one farm near Cochise, Arizona, and in the Salt River Valley has appeared in several places in extraordinary abundance on rose bushes, blackberry bushes and bean plants. This mite has been known to be of general occurrence here for some time but I have never in previous years known it in Arizona to attack any of the above mentioned food plants. So far the damage has not been extensive but the prevalence of the pest points to a possible danger to cotton. In a recent letter from Mr. McGregor, I learned that the two spotted red spider has been found by him in small numbers on cotton plants in the Imperial Valley and it is possible that a more thorough examination of cotton plants in the Salt River Valley would show that infestation has already occurred in some cases."

CONNECTICUT.

On June 25 Dr. W. E. Britton wrote as follows:

"Season about two weeks behind the normal and cold and wet. In many orchards the fruit did not set well on account of insufficient pollination. There is considerable injury from rosy aphids, Aphis sorbi, which is found chiefly on the terminal shoots; in previous seasons it has been confined to the inside fruit clusters."

"There is evidence that considerable injury will result in some orchards from the attacks of the false or lined red bug, Lygidea merdax."

"The first rose chafer was observed on June 18, and only a few have been seen since; June 9 is the earliest date heretofore recorded for New Haven and they usually appear in numbers about June 12."

"The tent caterpillar, Malacosoma americana, is scarce as compared with the last four or five years. There were a moderate number of egg clusters and the nests were strated, but did not develop; it is now difficult to find a full sized nest in the southern part of the state."

THE HISTORY OF THE UNITED STATES

CHAPTER I

On the 1st of July, 1776, the Continental Congress declared the United States to be a free and independent nation. This declaration was a bold step, and it was not until the 4th of July that the people of the United States were made aware of it. The declaration was a statement of the rights of the people, and it was a statement of the rights of the nation. It was a statement of the rights of the people to life, liberty, and the pursuit of happiness. It was a statement of the rights of the nation to peace, justice, and the pursuit of happiness. It was a statement of the rights of the people to a government of their own making. It was a statement of the rights of the nation to a government of their own making. It was a statement of the rights of the people to a government of their own making. It was a statement of the rights of the nation to a government of their own making.

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"The whitemarked tussock moth, Hemerocampa leucostigma, is abundant everywhere. This insect was much in evidence last season and many egg clusters were received from correspondents during the winter."

"Canker worms have done only a moderate amount of damage."

"In the truck garden, the cabbage root maggot has caused the usual damage. Cutworms are not especially troublesome. In some fields the striped cucumber beetle and the squash bug are abundant."

GEORGIA.

On June 1, Mr. E. Lee Worsham wrote as follows:

"The abnormally cool weather during the spring throughout Georgia has resulted in a very slow emergence of the boll weevil. They are now beginning to show up, however, in nearly every county in southwestern Georgia, but in no county have we found them very abundant as yet."

"The corn bill bug is doing considerable damage in Berrien, Lowndes and Ware counties."

"The cotton louse is doing serious damage in many sections of south Georgia to young cotton, but at the present time lady beetles are unusually abundant in practically all fields where lice are at work, that have been inspected, and are rendering a great service in reducing the lice."

"The grass worm has shown up in Richmond County and is doing considerable damage to vetch and other forage crops."

"Georgia has a good peach crop and we have never known the damage to be so small from curculio."

MASSACHUSETTS.

On June 25, Dr. H. T. Fernald wrote as follows:

"Complaints of insects are beginning to come in, but nothing has developed which is suggestive of the unusual abundance of any one form. Plant lice are quite abundant on fruit trees. The codling moth adults are now flying. The red bug has made its first appearance here at Amherst in abundance, quite a number of larvae having been taken the past week. Heretofore in all the years of collecting here, only two or three specimens have ever been taken, and I have attributed the red bug injury to some form allied to the red bug than the red bug itself. This year there is probably no question that it is this species. The pear Psylla is practically absent, and no pear thrips have as yet been discovered in this region. Flea beetles are abundant and doing considerable damage on potatoes, tobacco and other crops. Asparagus beetles are also reported, but in many cases appear to be kept under considerable control by the parasite. June beetles are flying but not particularly abundantly. The onion thrips has thus far not been more noticeable than usual, and few fields show any evidence of its presence. The rose beetle is here now but in small numbers. Wireworms are reported, but from widely separated parts of the state, not indicating in my opinion, any unusual abundance."

"As a whole the situation now indicates the abundance of insects of many kinds, but without remarkable prevalence of any in particular."

MISSISSIPPI.

On June 25 Prof. R.W. Harned wrote as follows:

"Throughout most of Mississippi crops are suffering from drought seriously. In some places there has been no rainfall for nearly two months. Because of this fact the damage caused by many of our more common insects appears more serious than usual. As usual, under dry conditions we are getting some complaints of the damage caused by chinch bugs, Blissus leucopterus. Heliothis obsoleta seems to be even more numerous than usual and we are receiving many reports of its work, especially on tomatoes and corn. Blister beetles are attracting considerable attention, especially Epicauta lemniscata, on various truck and garden crops and E. ferruginea on soy beans. Earlier in the season pecan growers were greatly disturbed because of the work of ambrosia beetles on their pecan trees. Most of them now realize that these trees were injured in other ways and that the ambrosia beetles that are so numerous have been attracted only to the dead and dying trees."

NEW YORK.

On June 25 Dr. E.P. Felt wrote as follows:

"The recent organized Insect Pest Survey and Information Service has resulted in a greatly increased interest in insect control. Every effort has been made to keep a close watch of developments and to urge farmers and others to adopt standard, well recognized measures wherever the abundance of pests seemed to warrant treatment.

There have been so far no unusual outbreaks of fruit insects, though such common pests as aphids, bud moths, and red bugs have been moderately common, while tent caterpillars are mostly unusually scarce. Spraying for the control of the codling moth has been probably more general and thorough than in preceding years. The pear Psylla has been very satisfactorily controlled as a whole by late applications of a lime sulphur wash, and pear thrips, while locally injurious, did not cause extended losses.

Field and garden pests most frequently brought to notice were cutworms, flea beetles, and potato beetles. There has been about the usual injury by these insects, and the same is true of the onion maggot and the onion thrips, though most of the damage by these latter, as might be expected, has been confined to the larger onion growing sections in the southern and western portions of the state.

June beetles have been abundant in a number of counties, being especially numerous in Albany, Columbia, Delaware, Lewis, and Rensselaer counties. Partial defoliation or serious injury to the tips of elms, oaks, birches, willows, and some other trees was rather general, especially in the case of those standing in or near large areas of grass. Data concerning these pests is being compiled for use in warning against injury by white grubs another season.

The cold backward weather of late spring delayed growth and favored serious injury to beans, especially in Genesee county. In a few instances entire fields were ruined. Reports of damage by this insect to

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both beans and corn were received from Rockland county.

Grasshoppers occur in small numbers on sandy areas, though present indications are unfavorable to serious damage. The insects are unusually late in developing, and the abundant rains have produced a large amount of vegetation, and even in sections where the insects are somewhat numerous the probabilities are that there is sufficient wild growth so that there will be comparatively little migration or drifting into cultivated fields."

NORTH CAROLINA.

On June 22 Mr. F. Sherman wrote as follows:

"During this period of 25 days (ending with June 22) there have been 38 definite complaints or inquiries concerning 26 species. Eliminating a number the following are mentioned:

Staple crop insects.-Corn bill beetle, two reports. A pest in low grounds of eastern North Carolina especially when corn follows chufas or coarse grasses and when not rotated.

Bean weevils, one report. County agent intending to aid in fumigation.

Chinch bug, one report. Considerable damage on small scale on one farm. Information for control sent to county agent.

Cotton root aphid, two reports, a pest when corn and cotton follow in rotation and even (as in this case) when oats has intervened. Subsides with settled hot weather.

Cotton leaf louse, one report, will presumably subside with hot weather, lady beetles and parasites.

Woolly maple aphid, five reports, evidently somewhat epidemic.

Strawberry root aphid, one report.

Apple aphids, five reports, tobacco extract recommended.

Caterpillars (unidentified) defoliating forest trees, two reports, both from mountains and indicating epidemic outbreak.

Ants (no specimens) cutting leaves from peach trees, one report of serious damage.. Field agent sent, expects to apply tanglefoot or similar material."

OHIO.

On June 25 Prof. H. A. Gossard wrote as follows:

"There has been no general or disastrous outbreak of injurious insects anywhere in the State, but canker worm damage is rather serious in Wayne, Stark and Richland counties. Forest trees such as linden, elm, oak and hickory have been partially defoliated very generally and in some cases a few acres have been so stripped that the timber is reported to be dying. Orchard trees suffered to a considerable extent, especially if they were located near woods so the caterpillars could drift on to them with the wind.

The Carabid beetle, Agonoderus pallipes, was found numerously in all parts of an 85 acre corn field at New Holland, Pickaway County the last week in May. They were devouring the seed corn and one-third

of the field had to be replanted. The beetles were also found to be numerous in adjoining rye and clover fields.

The Bill Bug, Sphenophorus zae (sculptilus) was very abundant in a 15 acre corn field at Bloomingburg, Fayette County. It was expected that it would be necessary to replant much of this field.

The milliped, Parajulus venustus, compelled the replanting of a large part of a 35 acre field in Paulding County.

The glassy cutworm, Hadena devastatrix, is reported to be very numerous in the southern part of Medina County, and replanting of corn will have to be done on its account.

Sod Webworms, usually the species Crambus trisectus, have caused serious damage to young corn at Hamerville, Brown County, compelling much replanting in a 20 acre field. At Curtice, Ottawa County, a 25 acre field was damaged so that only 80 per cent was standing at the time I received the report, and damage was still continuing.

Wireworms were reported as seriously injuring an 8 acre corn field at Clyde, Sandusky County, on a black muck field.

We have had some 20 or more reports of aphids, both of the green species and also the rosy species, on apple. We have had several reports of the black cherry aphid and also several reports in which potato vines, currants and cucurbits were being injured by aphids.

Tortoise beetles, of the genus Coptocycla, were reported from two or three points, feeding on sweet potatoes. Several inquiries have come to us concerning control of the rose beetle from Jewell, Springfield and Beaksville, Ohio.

The clover seed caterpillar, Grapholitha interstinctana, has prevented the development of clover seed crop in clover in many fields of Paulding County. The county agent has received many complaints regarding it. The moths are now quite abundant in clover fields around Wooster.

The stalk borer, Papaipema nitela, has been reported several times injuring young corn. It is numerous and injurious to corn at Wooster, and has been reported from East Palestine, Columbiana County. It is said to be doing extensive damage in Portage County.

The Colorado potato beetle has appeared in about the usual abundance in Wayne County, and it has been reported from Cincinnati and north Jackson and Huron County. Inquiries concerning them have come in from all quarters of the state, though these seem to be in the nature of preparedness inquiries rather than reports of their presence.

Flea beetles have been reported several times injuring potatoes and young corn. These reports came from Troy, Miami County, from Cumberland, Guernsey County, and several other places. I have observed them to be numerous on all kinds of garden truck about Wooster and have had many local calls about them over the telephone.

One of the wheat saw flies, apparently a species of Dolerus was reported doing some damage to wheat in Scio, Harrison County, and they are numerous enough in the fields about Wooster to attract notice. They do not seem to be doing widespread or threatening damage.

We have had many inquiries regarding methods for controlling garden ants. These inquiries come from widely scattered points. Several inquiries have been received regarding methods of control of slugs or shellless snails on garden stuff. Also many inquiries have come to us regarding the striped cucumber beetle.

The periodical Cicada is said to have appeared by millions at Youngstown, and we have had reports indicating that the brood has appeared in its usual numbers over a considerable part of the territory in which it has been previously mapped. We expect to have full reports regarding its distribution by the first of July.

The white marked tussock caterpillar is reported in large numbers very generally over the eastern part of Ohio, and a recent inquiry from Fostoria indicates that it is also abundant in that neighborhood.

The mulberry bark beetle, Phloeophthorus frontalis has been sent to us from Summit County, Ohio.

The pill bug, Armadillidium vulgare, was received from Dayton where it was said to be destroying garden and flowering plants.

A consignment of nematode worms was received from Bradford, Miami County, destroying a tobacco field. It was said that these worms reduced the crop very much last year and that they were destroying it the present season.

Considerable damage by the wheat joint worm, or what I suppose to be this species, as I judge from verbal description, is being done to wheat fields in Miami County.

The plum curculio has been abundant and injurious in Wayne County and I have scattering reports that it has been very numerous in northeastern Ohio, especially about Youngstown. From our records regarding its distribution last year, I suspect that it has been very numerous and injurious over all of northeastern Ohio."

PENNSYLVANIA.

On June 19 Mr. C.H.Hadley, Jr., wrote as follows:

"Red bugs, chiefly the false red bug (L.mendax), are causing considerable trouble at present, injuring the leaves of apples in the central eastern part of the state through Luzerne and Lackawanna Counties, in the central southern part in Adams County, and over toward the southwestern part of the state in Somerset County.

Aphids, particularly the rosy aphis, have been quite injurious so far in the southern part of the state and less so in the western and eastern parts. The elm aphis is very common and around State College and other parts of Centre County a very large proportion of the leaves are very badly curled.

The codling moth does not seem to be very bad this year, since according to our observations in a number of representative places throughout the state by far the greater proportion of the pupae have been eaten by the birds.

We are beginning to receive many complaints of plant lice on various garden crops such as cabbages, rutabagas, and other similar crops. We are just receiving word lately of the emergence of the seventeen year locust in the western part of the state. The insect seems to have arrived on schedule time and is causing some little excitement especially among the amateur gardeners in and out of the cities. White grubs have been reported from quite a number of places especially the adult beetles, and I rather anticipate a great deal of injury from these insects and wireworms another season."

The following is a list of the names of the persons who have been elected to the office of Justice of the Peace for the year 1900. The names are given in alphabetical order of their surnames. The names of the persons who have been elected to the office of Justice of the Peace for the year 1900 are: [illegible text]

NOTICE

Notice is hereby given that the following persons have been elected to the office of Justice of the Peace for the year 1900. The names are given in alphabetical order of their surnames. The names of the persons who have been elected to the office of Justice of the Peace for the year 1900 are: [illegible text]

RHODE ISLAND.

On June 26 Prof. A. E. Stene wrote as follows:

"It may be noted that the canker worms seem to be unusually abundant in some sections of the state, also cutworms and wireworms. Potato bugs, on the other hand, are less numerous than usual and their place as potato pests is being taken by the flea beetle which seems, if anything, to be more abundant than usual. We also have an unusual number of inquiries about wormy beans."

SOUTH CAROLINA.

On May 29, Prof. A. H. Conradi wrote as follows:

"In the coastal section the mole cricket is making a tremendous inroad and is a most threatening pest to the trucking sections. We are now trying to get this provided for and hope that we will succeed at least in some measures.

We have every reason to believe that we have an outbreak of wheat head army worm in Darlington County. This is based on the description in a letter and have wired for specimens. This pest has never before come to my attention in this state.

Chalcodermus anneus has been unusually abundant and destructive to stands of cotton.

Chaetoenema pulicaria has been destructive to truck, sweet potatoes and corn.

Specimens of army worms with report of an outbreak has just been reported to us from Edgefield County."

TENNESSEE.

On June 21 Mr. G. M. Bentley wrote as follows:

"The bean leaf beetle, Ceratoma trifurcata, has been very bad indeed, attacking beans in the gardens of the state. This was especially true a few weeks ago during which time we were having very dry weather.

The turnip or cabbage louse, Aphis brassicae, has been very plentiful in all parts of Tennessee this year. Our climatic conditions are such that the parasites of this aphid have not done effective work this season, and many complaints of the louse have been sent to this office.

The Colorado potato beetle, Leptinotarsa decemlineata, is occurring very irregularly through the state. Some places very few if any have been seen, while in other places a larger number than usual is present.

The cutworms, especially in the gardens, have been unusually bad this year. Our spring weather has been rather cool, especially at night.

The sugar cane beetle, Ligyrus rugiceps and gibbosus, has caused considerable injury in parts of East and West Tennessee. In each case the outbreak has been traced to nearby dense growth of cane or coarse

grasses.

The wheat joint worm, Isosoma tritici, in certain counties of Tennessee has occurred in large quantities this year. It is the first time covering a period of 12 years that we have found the wheat joint worm doing injury. Heretofore only occasional specimens have been taken in different parts of the state. We do not seem to find the joint worm in any portion of the state excepting the upper eastern Tennessee counties where the infestation runs from 5 to 25 per cent. Only a moderate amount of the Hessian fly has been found. Very little fly fallen wheat occurs."

TEXAS.

On June 22 Prof. F. B. Paddock wrote as follows:

"In south and southwest Texas the cotton louse has been reported as being more injurious than in years past. In south Texas the garden web worm has been present in some of the cotton fields. Grasshoppers in limited numbers have been present in the alfalfa section of the Pecos Valley, which is in west Texas. Reports indicate that wherever cotton is grown the boll weevil is expected to be present although it is generally admitted that the extreme dry weather will undoubtedly reduce the weevils that may be present. The corn ear worm will undoubtedly do some injury wherever corn is grown. This pest seems to be more noticed as a corn pest than as a cotton pest. In west Texas considerable trouble is expected from the sorghum midge."

Mr. Ernest E. Scholl reported as follows on June 25:

"Cotton web worms, Loxostege similas, at New Braunfels, Lockhart, San Antonio, San Marcos, Seguin, Fentress, Floresville, Karnes City, Falls City, Beeville and Sinton. At these places they are in serious numbers, while in a few other places they are reported as doing only a slight amount of damage.

Farmers in Caldwell and Bexar Counties report excellent results where they used a solution containing $1 \frac{1}{2}$ pounds powdered lead arsenate to 50 gallons of water for the control of these insects.

At New Braunfels farmers report to me that worms were destroyed in large numbers by simply dragging brush through the cotton fields during the heat of the day. This forced large numbers of the worms on to the host soil between the rows where they were killed.

Inspecting a large acreage of peanuts in Harris County reveals the fact that the plants were being gradually stunned by the presence of thrips.

Thrips are causing tomato buds and blossoms to fall in the following counties: Travis, Hays, Comal, Caldwell, Guadalupe and Bexar.

Cabbage fields south of San Antonio are seriously infested with cabbage worms Pontia rapae.

Melon aphids are now reported on cucumbers, cantaloupe and water melons in the vicinity of Austin, New Braunfels and San Antonio.

The presence of large numbers of the adults of the cotton square borers, Uranotes melinus would indicate a serious infestation of larvae

within a short time. As a rule, however, parasites take care of this pest in this section.

Heliothis obsoleta have been doing serious damage in Travis and Harris counties on tomatoes. In some sections the worms have been successfully trapped by the use of early sweet corn. This same insect will evidently not be so destructive to cotton this fall due to the fact that large areas of corn being burned up is destroying many of the young stages. In other instances the corn is being cut up and placed into silos or is being shocked in the fields.

On June 22 I had the occasion to notice the destruction of large numbers of army worms Leucania unipuncta, at New Braunfels, by sparrows. A few parasites of this insect were found.

Considerable damage to squash vines in the truck farms of Harris County is being caused by the squash vine borer Melittia satyriniformis.

Boll weevils are very scarce in most of the sections but due to the fact that we are having local showers in the sections between Austin and San Antonio this insect may become a serious menace within a short time."

VIRGINIA.

On June 20 Mr. W.J.Schoene wrote as follows:

"The unusually cold weather has apparently held back insects to some extent. There have been numerous reports of flea beetles attacking garden crops, and I have learned that in some orchards in the state practically the entire crop of fruit had been damaged by the work of the rosy aphid Aphis sorbi. We have also received several reports of injury by the lady bird beetle (Epilachna borealis) to water melons."

